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Proposal Paper

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Drinking at 21…Fair?

A lot of people think that the law stating that persons under the age of 21 cannot purchase or consume alcoholic beverages is perfectly reasonable, and necessary for that matter. On the other hand, people who have researched the scientific rationale behind this law realize it makes little to no sense. There isn’t very good reasoning behind the law banning persons under the age of 21 from consuming alcohol. Through research it can be argued that this law is unjustified, and if changed can prove to be more beneficial. Even though other laws may have to be tweaked to prevent any safety risks, this change would be an overall benefit.

The reasoning behind this law is that alcohol has detrimental effects on the brain of those under the age of 21, which is true. But research shows that alcohol has effects on the brain at all ages, although the developing brain experiences a couple of effects that aren’t seen in older ages. A fact that not many people know is that the brain continues to develop until age 24. Why has this law been set up if its rationale completely contradicts its letter?

There is scientific evidence that show the short and long term effects of alcohol, and how they become almost a non-factor when taken in low quantities.

Studies have shown that there are many factors which influence how an individual can be affected by alcohol. Some of these factors are gender, age, height, weight, current health condition, amount of food intake, drugs or medicine taken, how often and how much a person drinks, genetic history, and their level of education. Things like age, weight, height, and gender affect the ratio of blood to alcohol (Blood Alcohol Content) in the bloodstream. Factors like how often or how much a person drinks and their genetic history can affect how much a person is able to drink before feeling inebriated. Food intake coats the stomach which forces the alcohol to be absorbed more slowly. Drugs and medicine affect how thin the blood is in the bloodstream, increasing or decreasing the blood to alcohol ratio.

(pubs.niaaa.nih.gov, Alcohol Alert)

Long term effects of drinking heavily are sometimes used as a reason for the banning of alcohol under the age of 21, but this is true for ages above 21 also. Brain scans show that the overall size of the brain is decreased in long-time alcoholics; these brain scans have scientifically proven this because when the brain shrinks, the ventricles inside the brain increase in size to accommodate the empty space in the brain. The ventricles in the brain are associated with fluid instead of brain tissue. As a result of the decreasing size of the brain, functions of different parts of the brain tend to change. The overall size of the brain isn’t just condensing; the neurons in the brain are literally reduced, causing changes in their pathways.

# The white matter in the brain is also affected when exposed to alcohol for a prolonged period of time. White matter is the matter in the brain associated with axon connection, which are basically information pathways in the brain. White matter is significantly diminished in the prefrontal lobe of persons who frequently expose themselves to large amounts of alcohol. The prefrontal lobe is associated with the recognition of decisions with good or bad consequences, and is highly involved in responses to different social situations. Also, the prefrontal lobe helps associate levels of emotions with long-term memories. If alcohol is consumed in large amounts, and frequently, these areas can be affected, causing reduced function (Duncan B. Clark, Dawn L. Thatcher, Susan F. Tapert, Alcohol, Psychological Dysregulation, and Adolescent Brain Development).

It is also sometimes argued that alcohol shouldn’t be legal because of the short-term side effects of consumption, but once again these side effects result from consuming large quantities. A lot of people don’t drink in large amounts to get drunk, they drink for pleasure. The following research shows some of the short-term side effects that affect everyone, not just those under the age of 21.

Drinking in large amounts produces a general suppression of the central nervous system (CNS) (this consists of the brain and spinal cord). This happens because alcohol is an inhibitory neurotransmitter. When it gets into the brain, it breaks or reduces connections between neurons. This means that brain signals have a harder time reaching their intended destination, throwing the body out of whack, physically and mentally. Alcohol can also increase serotonin levels in the brain, which explains why when some people consume too much alcohol, the brain becomes much more emotional and sensitive to outside triggers (60 Minutes, Lowering the Drinking Age).

The reason people become angry while intoxicated is that the same inhibitory neurotransmitter that suppresses the CNS, also suppresses the Amygdala, located in the brain. The Amygdala are almond shaped structures in the brain involved in fear responses and identifying threats. When the Amygdala are blocked, fear responses are lessened, meaning people are more ready to take on a potential threat. This is where the phrases “beer muscles” and “liquid courage” come from. The drinker doesn’t recognize a threat; they just act on their initial reaction to the situation (60 Minutes, Lowering the Drinking Age).

Alcohol, even if older people don’t believe it, is an addictive substance. When consumed, alcohol heads for the nucleus accumbens, which is the pleasure center of the brain. The feeling of pleasure that can come from drinking alcohol is actually due to a chemical reaction. The brain always wants to return to things that give it pleasure, which is why some people have a hard time quitting drinking. This isn’t like normal drug addictions; this addiction occurs in a different part of the brain. In most drug addictions, certain receptors are blocked (dopamine receptors, opiate receptors, [N-methyl d-aspartate](http://en.wikipedia.org/wiki/NMDA) receptors) causing neurotransmitters to roam free in the brain and exert changes on neurons that give a feeling of constant pleasure (Wikipedia, Substance Dependence). When alcohol is consumed, the pleasure comes from the absorption of the substance by the nucleus accumbens (enotes.com, Nucleus Accumbens).

Alcohol also finds its way to the Basal Ganglia, which is responsible for movement and repetitive tasks, and is suspected to be the reason for Obsessive Compulsive Disorder. Sometimes even if people want to stop drinking, they have a compulsive desire to continue, making it hard for them to stop (bnl.gov, Regional Brain Metabolism During Alcohol Intoxication).

Finally, it has been shown that low doses (casual drinkers) do virtually no damage to the brain. Most people from older generations think that younger people drink excessively more often than casually, which is not true. The reason it seems this way is because people under the age of 21 who enjoy drinking aren’t given the responsibility of alcohol. Since it is illegal for these underage people to drink this substance, they feel as though they need to drink quickly so they don’t get in trouble. This causes older generations to think people underage just drink to get drunk. Given the responsibility, underage persons would take drinking in moderation more seriously. Some benefits can actually be seen in those who drink in small amounts.

In studies done on brains of light beer drinkers (less than two drinks a day) there are fewer diagnosed strokes than in non-drinkers. This is because alcohol is a blood thinner, which helps to reduce tiny clots that can occur in the brain, and thus prevent strokes (Mayoclinic.com, Alcohol Use). It has also been found that increased brain function is a common side effect of light wine drinking. Light wine drinking is defined as about four or five glasses of wine in a two week period. There is no scientific explanation for this, but multiple studies show a strong association between wine and cognitive function (Mayoclinic.com, Alcohol Use). There is also a strong correlation between alcohol consumption and a decreased risk of Alzheimer’s, a degenerative and incurable brain disorder. Alzheimer’s is the most common type of dementia and eventually results in death. This research shows that if alcohol consumption can somehow be monitored, there can actually be benefits involved.

Alcohol has effects on the developing brain more so than the developed brain, but not by much. Drinking during brain development can have small effects on the brains neurons. If taken in low doses this generally does not happen. If taken in large amounts, permanent damage can be done. Neurons are destroyed, which can sometimes be repaired. When these neurons can’t be repaired, that brain pathway is permanently broken, meaning that part of the brain can never be properly used again.

Older generations usually don’t agree with this law because they don’t take into consideration that nearly all the effects alcohol has on the brain arise through excessive consumption. Not everyone drinks alcohol in order to get drunk; some enjoy the taste. People under the age of 21 that appreciate the taste of different types of alcohol can’t experience it with this law in place. It’s unfair to those who just want to drink casually instead of drinking to get drunk. The people who disagree with this law see everyone under the age of 21 as alcoholics who only drink to get drunk.

Not all people over the age of 21 agree with this law; some completely oppose it. These people use the reasoning that if people over the age of 18 can decide whether or not they can risk their lives in the army, why can’t people decide whether or not they can consume alcohol and accept the risks associated with it? This law is pretty much saying people between the ages of 18 and 20 aren’t responsible enough to drink. Older people think that because people ages 21 to 24 drink too much as it is that the age group below them would do the same. How can multiple generations be bundled into one group, young people? Not every age group has the same ideals as the on ahead of it. It isn’t just to pass judgment on an entire generation because of how a select few act. If the legal age was lowered to 18, kids wouldn’t learn to drink in quantity and grow up with that kind of mind set. Younger people would worry more about quality and grow up as a casual drinker.

These people also realize the law is discriminatory because they know brain development stops around age twenty-four. This means that if alcohol does have a significant effect on the brains of those between the ages of 18-20 year olds, then it is in no way justifiable for the legal drinking age to fall between the ages of 21 and 24.

(potsdam.edu, Brain Development and Drinking Alcohol)

Some may argue that the deaths due to drunk driving may rise due to the younger drinking age and the age at which a driver’s license can be obtained. Well the obvious idea would be to lower the drinking age and higher the driving age.

As of right now, people at age 16 are three times more likely to be involved in a car crash then the average of all other ages of drivers. Also, 63% of crashes are due to teenage drivers between the ages of 15 and 20. Without even taking alcohol into consideration, this just screams that the law should be raised for obtaining a driver’s license. This law would be justified for age 21 because there is a significant decrease in car crashes after age 20. Unfortunately, people don’t see the driver’s license age a significant problem, but this should be seen as more of a problem then the age at which alcohol can be consumed.

It’s odd that nearly every country besides the US has a lower drinking, usually between 16 and 18. They seem to understand that it’s just as harmful at age 18 as it is up to age 24. I also think due to their lower drinking ages, the people of these countries feel less obligated to drink excessively. This is evident by the fact that there aren’t any ongoing controversies about the legal age for alcohol consumption in these countries. Because the younger population is given the responsibility of deciding how much they can drink, they find it easier to drink casually. If the United States gave the option for younger ages to drink, they would take the responsibility more seriously and wouldn’t feel obligated to drink as heavily.

One way the United States could make sure the younger generation takes this responsibility seriously is by using mandatory prerequisites in order to legally drink.

If the federal government used a very small fraction of its budget to fund this process, it would have an overall benefit for them. Not only will pretty much the entire age group of 18 to 21 vote for the politicians who approved it, but the older generations might see this is a positive thing, making the process much more difficult to be able to drink between the ages of 18 and 24. Ages 18-24 are seen as the time people drink heavily.

Instead of just having anyone 18 and over be able to drink, those between the ages of 18 and 24 would need to take a 3 month class that would inform people about everything alcohol related. The instructor would be an employee for the federal government, this way the government can oversee the entire process instead of letting individual states take care of it. This would be a serious class with exams, quizzes, and papers. A grade of 90 or better would have to be obtained in order to pass this class. The class would meet four or five times a week for an hour each night in order to ensure all materials are covered. This would ensure that people are completely knowledgeable on this subject making them more inclined to drink responsibly.

Next, they would have to take a final exam and be monitored during one drinking session to get an idea of how they would use alcohol. If the drinking session showed responsible actions and the final exam had a score of 95 or above, a license would be given saying that alcohol can be consumed. At this point, the purchase of alcohol is still illegal. This is kind of like the permit phase (temporary papers before receiving a driver’s license) of obtaining a full alcohol license. Over the next six months, the person would be randomly monitored by federal employees to evaluate the responsibility of the person when drinking. If the evaluation is good then a higher license is received allowing the purchase of alcohol.

Lastly, the amount of alcohol purchased over the next six months is monitored in order to see if the amount bought is tolerable. This is done by forcing every person that has one of these higher level licenses to swipe there card each time they purchase any type of alcohol. When the card is swiped, the system registers how much is purchased and a log is kept and sent to the government every other week. After this, a full license to drink and purchase alcohol is received and all privileges are available.

This would definitely reduce the risk of drinking because it allows people under the age of 21 to take on the responsibility of drinking without the risk currently associated with it. This argument provides not only an alternative to the legal drinking age that would lessen the risk of drinking, but also an alternative to the current driving age, which has been proven to be much less safe at lower ages.

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